ACC.11
60th Annual Scientific Session & Expo

E462
JACC April 5, 2011
Volume 57, Issue 14

CONGENITAL CARDIOLOGY SOLUTIONS
(ADULT CONGENITAL AND PEDIATRIC CARDIOLOGY)

PREDICTING THE OCCURRENCE OF ATRIAL ARRHYTHMIA AFTER CLOSURE OF AN ATRIAL SEPTAL DEFECT

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
Monday, April 04, 2011, 3:30 p.m.-4:45 p.m.

Session Title: Adult Congenital Heart Disease
Abstract Category: 43. Adult Congenital Heart Disease
Session-Poster Board Number: 1133-430

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Background: Risk factors that determine the occurence of late atrial arrhythmia in patients with atrial septal defect (ASD) type II drive clinical management. However, a quantitative event-free survival prediction tool has not yet been established.

Methods: Data from 220 patients were analyzed to assess predictors of event-free survival. Independent risk factors were identified through consecutive uni- and multivariate analysis. Based on the multivariate analyses, a weighted risk score was derived. The discriminatory ability of the risk model was assessed with the c-index. To approximate an independent validation, for each 1000 bootstrap samples, the model was refit and reassessed on the original model to compute c-index and hazard ratios.

Results: A total of 220 patients (23% men, mean age at repair 52±16) was included. Fifty-seven patients presented with late atrial arrhythmia. Multivariate analysis showed that mPAP ≥25mmHg (HR 2.94; 95%CI 1.60-5.41; P=0.001), gender (HR 1.94; 95%CI 1.08-3.46; P=0.027), atrial arrhythmia before (HR 3.62; 95%CI 1.93-6.79; P<0.0001) and ≤1 month after repair (HR 5.92; 95%CI 2.91-12.02; P<0.0001) were predictive of late atrial arrhythmia. A risk score (0 to 19 points) to predict event-free survival was derived and validated by bootstrapping technique.

Conclusions: We identified predictors of arrhythmia-free survival and formulated a prognostic risk score. This may allow for individualization and optimization of therapeutic strategies after ASD closure.